

REMARKS

Claims 1-9, 22-26, 28-29 and 32-40 are pending. Claims 22-25, 32-34 and 40 read on the elected invention. Non-elected claims 1-11, 14-21, 26-29 and 35-36 were withdrawn from consideration by the Examiner. Applicants cancel non-elected claims 10-11, 14-21 and 27 without prejudice to future prosecution of that subject matter. Upon an indication that an elected claim is allowable, rejoinder of non-elected claims 1-9, 26, 28-29 and 35-39 is requested.

The amendments are fully supported by the original disclosure and, thus, no new matter is added by their entry. For example, the specification contains support for stringent hybridization conditions and at least 95% sequence identity at page 11, lines 9-11, and page 21, lines 11-18, inter alia.

Specification/Claim Objections

The specification was objected to by the Examiner. The title of this application is amended to be descriptive of the invention; the hyperlinks are deleted.

Claims 23-25 and 32-34 were objected to as allegedly informal. Claim 24 recites the limitations of claim 11. The others are corrected as suggested by the Examiner.

Withdrawal of the objections is requested.

35 U.S.C. 112 – Definiteness

Claim 25 was rejected under Section 112, second paragraph, as allegedly “indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.” Applicants traverse.

The Examiner’s suggestion for amending the claim to correct the informality is gratefully acknowledged. Adoption of her suggestion moots the rejection.

Applicants request withdrawal of the Section 112, second paragraph, rejection because the pending claims are clear and definite.

35 U.S.C. 112 – Written Description

The specification must convey with reasonable clarity to persons skilled in the art that applicant was in possession of the claimed invention as of the filing date sought.

See *Vas-Cath v. Mahurkar*, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). But the Patent Office has the initial burden of presenting evidence or a reason why persons of ordinary skill in the art would not have recognized such a description of the claimed invention in the original disclosure. See *In re Gosteli*, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989).

Claims 23-25 and 32 were rejected under Section 112, first paragraph, as allegedly failing to comply with the written description requirement. It was further alleged, "The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention." Applicants traverse because the specification teaches a representative number of species within the claimed genus.

As an initial matter, claim 24 recites the term "hybridizes" and replaces "obtainable" with --obtained--. This clarifies Applicants' original intention in claiming their invention. Further, the skilled artisan would understand that a polypeptide or enzyme that is described as an "isolated asparaginase" or a "recombinant asparaginase" contains at least the functional activity of asparaginase activity.

It was alleged in the Office Action that Applicants' specification does not teach how a person skilled in the art would obtain an amino acid sequence homologous to SEQ ID NO: 3 that maintain asparaginase activity. Applicants disagree. Their specification at pages 18-23 (see the portion entitled "Functional equivalents") gives several examples of the skilled artisan would practice the invention with functional equivalents of an asparaginase having the amino acid sequence of SEQ ID NO: 3. Therefore, the skilled artisan would be in possession of functional equivalents of the disclosed asparaginase through such homologous sequences defined by at least 90 or 95% sequence identity to SEQ ID NO: 3 OR highly stringent hybridization to the complement of SEQ ID NO: 1 or 2, which still maintain asparaginase activity.

As regards the scientific article by Seffernick et al. (J. Bacteriol. 183: 2405-2410, 2001), which was cited in the Office Action, page 2409, first column, lines 24-26 states "the present finding that proteins with >98% sequence identity catalyze different reactions in different metabolic pathways is highly exceptional" (emphasis added). Thus, the document itself admits that, although minor sequence changes to a polypeptide could

affect enzymatic function, this would not be expected and is considered as special. The single example described by Witkowski et al. (Biochemistry 38:11643-11650, 1999) is similarly considered to be exceptional and not indicative of the general case.

Withdrawal of the written description rejection is requested because the specification conveys to a person skilled in the art that Applicants were in possession of the claimed invention as of the filing date.

35 U.S.C. 112 – Enablement

The Patent Office has the initial burden to question the enablement provided for the claimed invention. M.P.E.P. § 2164.04, and the cases cited therein. It is incumbent upon the Patent Office, whenever a rejection on this basis is made, to explain why it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement. *In re Marzocchi*, 169 USPQ 367, 370 (C.C.P.A. 1971). Specific technical reasons are always required. See M.P.E.P. § 2164.04.

Claims 22-25 and 32-33 were rejected under Section 112, first paragraph, as allegedly failing to comply with the enablement requirement. It was further alleged, "The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims." Applicants traverse because their claimed invention does not require undue experimentation to make and use.

As an initial matter, the term "obtainable" is replaced with --obtained-- in claim 23. This clarifies Applicants' original intention in claiming their invention. Further, the skilled artisan would understand that a polypeptide or enzyme that is described as an "isolated asparaginase" or a "recombinant asparaginase" contains at least the functional activity of asparaginase activity.

Applicants' specification teaches a person skilled in the art how to make asparaginases according to the invention and to confirm their enzymatic activity. The amount of experimentation required to determine whether an amino acid sequence having at least 90 or 95% sequence identity to SEQ ID NO: 3 OR encoded by a polynucleotide that hybridizes under highly stringent conditions to the complement of SEQ ID NO: 1 or

2 has asparaginase activity would not be undue for skilled artisans familiar with protein engineering.

Withdrawal of the enablement rejection is requested because the specification enables a person skilled in the art to practice the invention commensurate in scope with Applicants' claims.

35 U.S.C. 102 – Novelty

A claim is anticipated only if each and every limitation as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of Calif.*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is claimed. See *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Claims 22-25 and 32-34 were rejected under Section 102(b) as allegedly anticipated by Louboudy et al. (Egyp. J. Biotechnol. 4:110-123, 1998). Applicants traverse.

It was alleged that the claims are anticipated by Louboudy, presumably under the doctrine of inherency since the Examiner admitted that the cited document fails to teach the amino acid sequence of its enzyme. Applicants disagree that Louboudy describes the same enzyme and puts their claimed invention in the possession of the public.

The Examiner stated that the enzyme disclosed by Louboudy is most active in the presence of buffers having a pH range of 6-6.6. But the asparaginase enzyme that is taught by Applicants in their specification has a different pH optimum (i.e., between 4-5). Example 2 on pages 30-31 of the present specification shows that maximal enzyme activity is obtained below pH 5.5 in citric acid/phosphate buffer. The enzyme disclosed by Louboudy has activity in the temperature range of 22-45°C, with a maximum at about 30°C. But Applicants' enzyme has maximum activity at a temperature of about 50°C. For both of these reasons, the enzyme disclosed by Louboudy is not the same as the enzyme claimed in this application.

Claims 24-25 and 32 were rejected under Section 102(b) as allegedly anticipated by Minton et al. (PIR accession A26064, 1999). Applicants traverse.

Comparison of the amino acid sequence of the enzyme disclosed by Minton and SEQ ID NO: 3 shows a low level of homology: i.e., about 40% sequence identity. This

would not permit the nucleotide sequence encoding Minton's enzyme to hybridize under high stringency conditions to the complement of SEQ ID NO: 1 or 2. Therefore, the cited document neither teaches nor makes obvious Applicants' claimed invention.

Withdrawal of the Section 102 rejections is requested because the cited documents fail to disclose all limitations of the claimed invention.

Conclusion

Having fully responded to the pending Office Action, Applicants submit that the claims are in condition for allowance and earnestly solicit an early Notice to that effect. The Examiner is invited to contact the undersigned if additional information is required.

Respectfully submitted,

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